

## ABSTRACT OF THE DISCLOSURE

The present invention demonstrates that mitochondrial DNA damage occurs prior to, or simultaneous with, atherosclerotic lesion development, that aortic mitochondrial DNA damage increases with age, and that genotype and diet both influence the level of mitochondrial DNA damage. Hence, the present invention demonstrates that mitochondrial DNA damage occurs early in atherosclerosis, and may be an initiating event in atherogenesis, and provides methods to predict coronary atherosclerotic heart disease based upon the amount of mitochondrial DNA damage.